GPM Planning Workshop
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UMUC Conference Center, College Park, MD, USA

Satellite Data Assimilation and Its Future Plan in Japan Meteorological Agency

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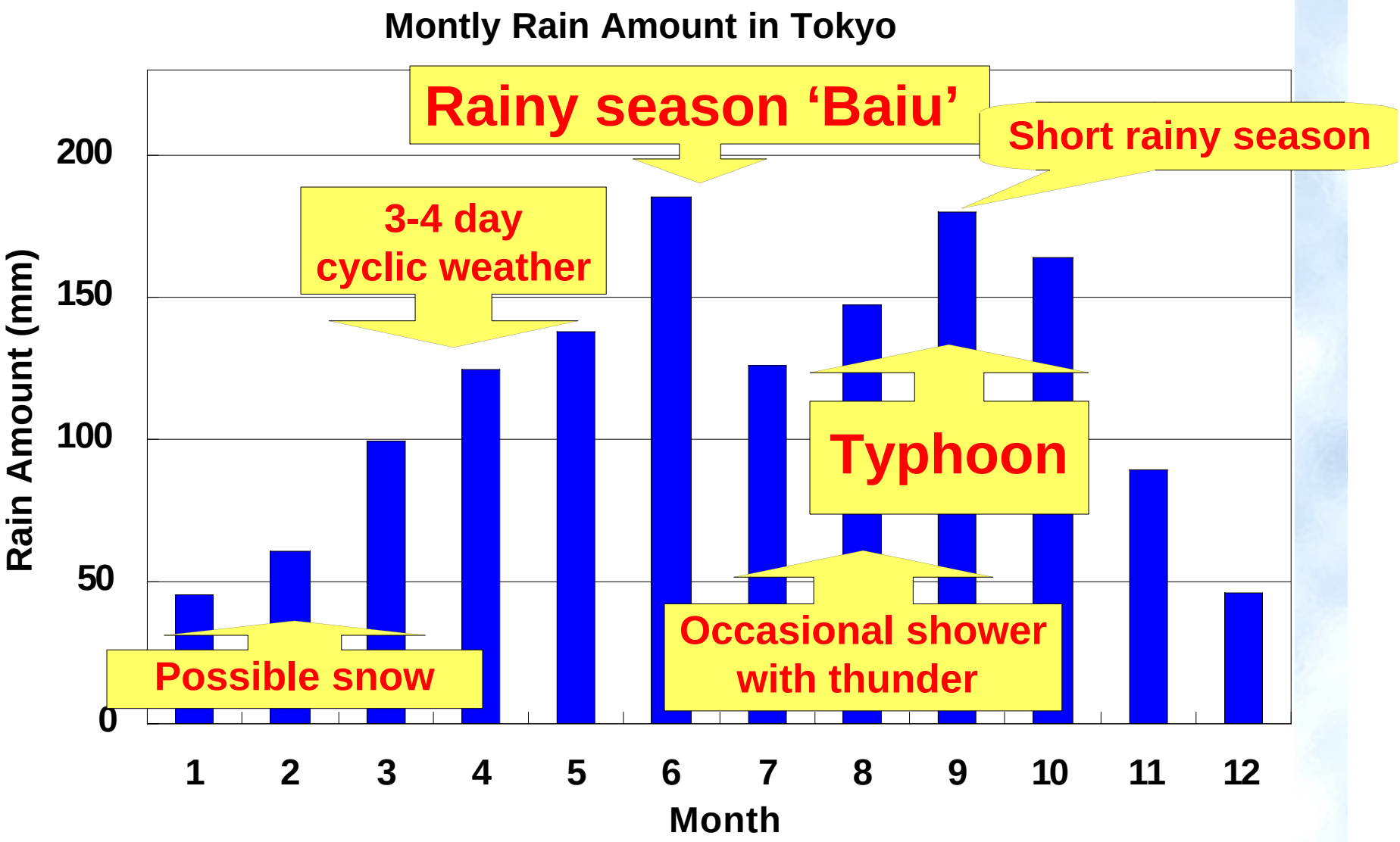
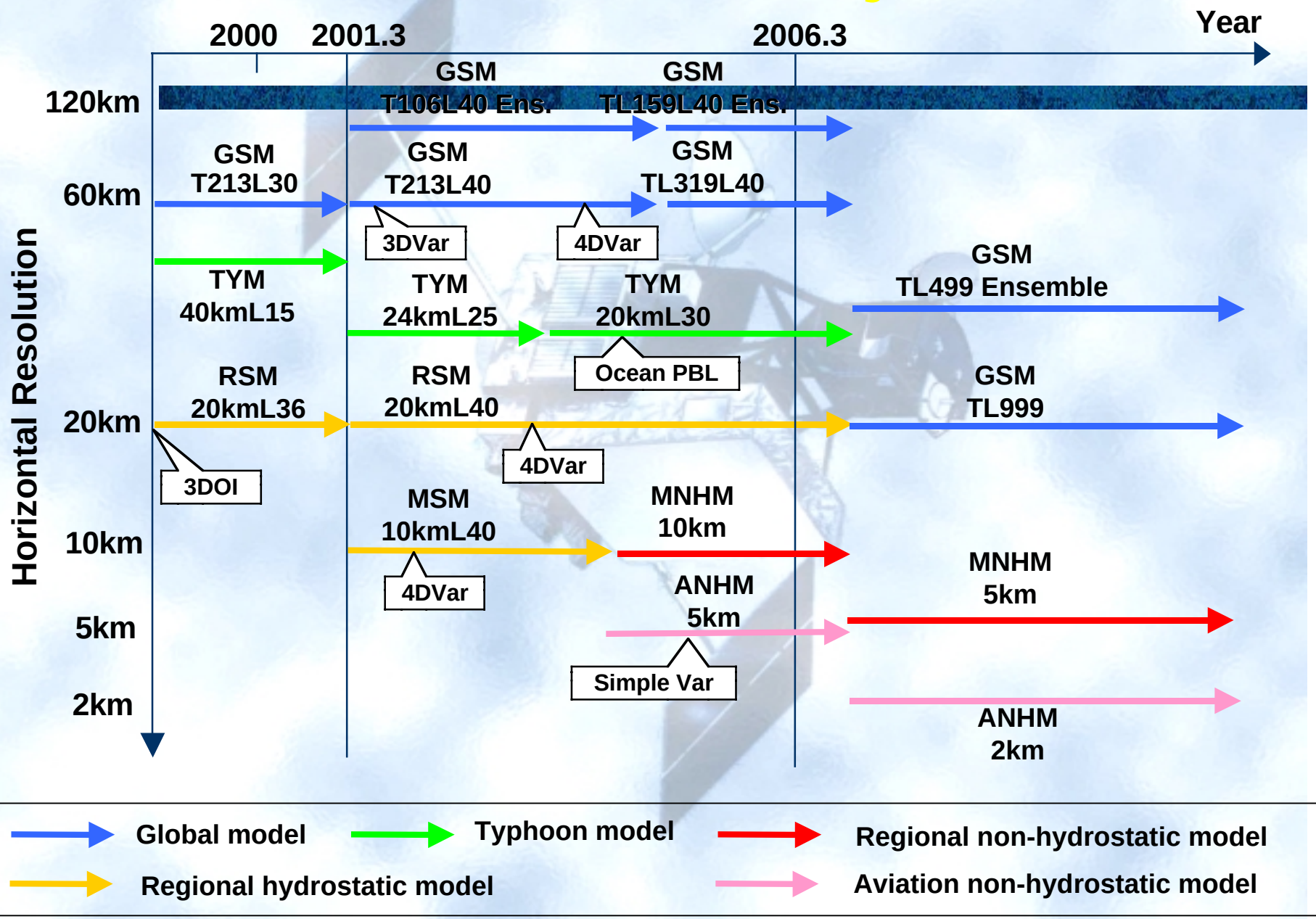
and
Environment Modeling Center, NCEP, NWS, NOAA

Why Do the Japanese Have Great Interest in Rain ?

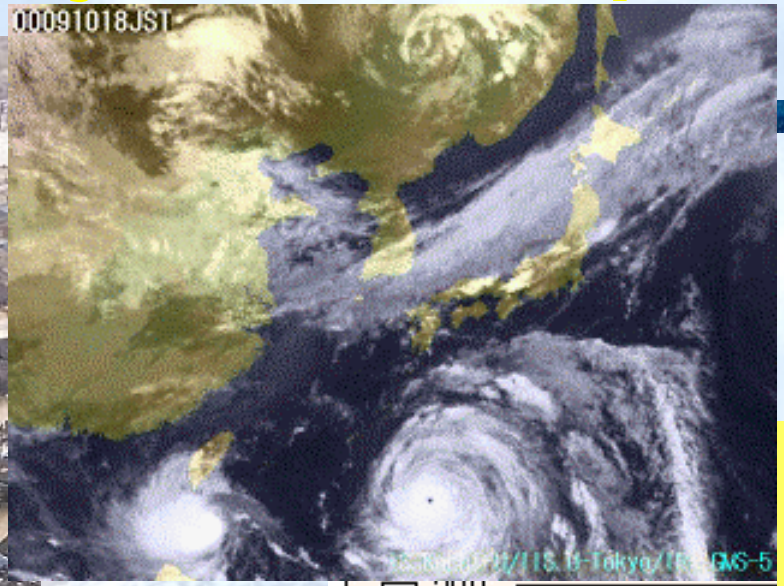


JMA Plans for NWP systems



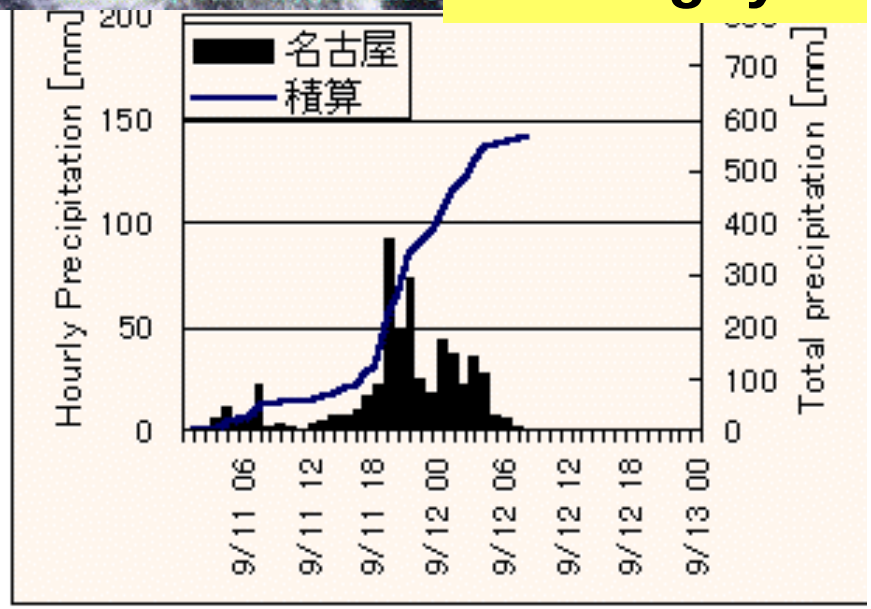
Tokai Heavy Rain in Sep. 2000

By Sankei morning newspaper on Sep.12, 00



By Kochi Univ. Weather Info. Http://weather.is.kochi-u.ac.jp

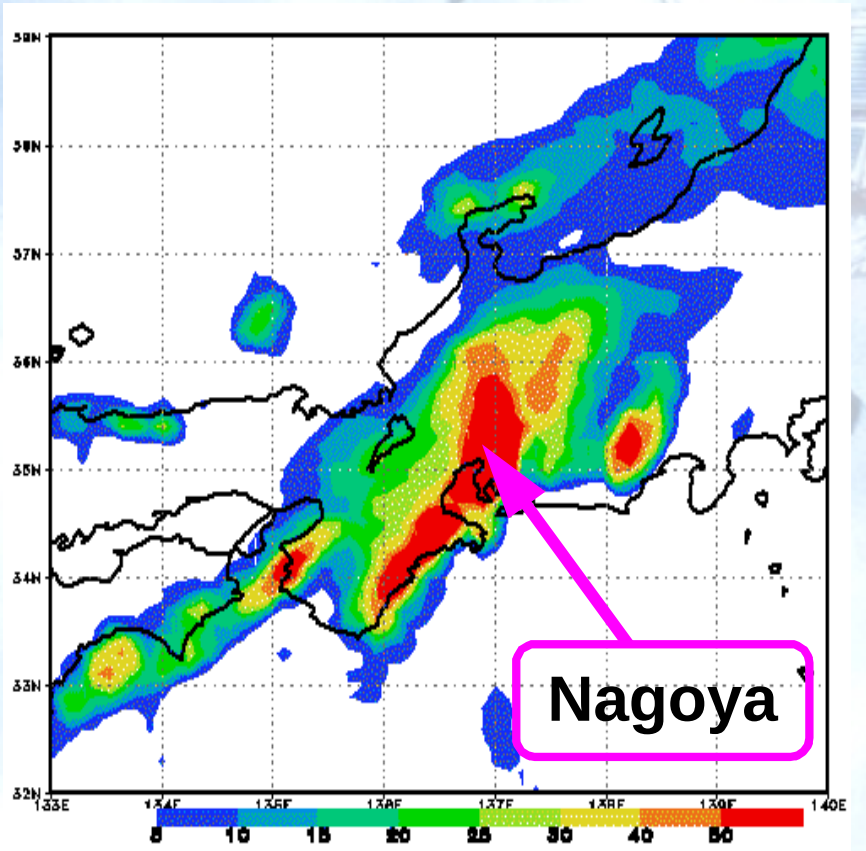
Precipitation at Nagoya



By Meteo. Info. and Disaster prevention fmd.dpri.kyoto-u.ac.jp/~ushiyama

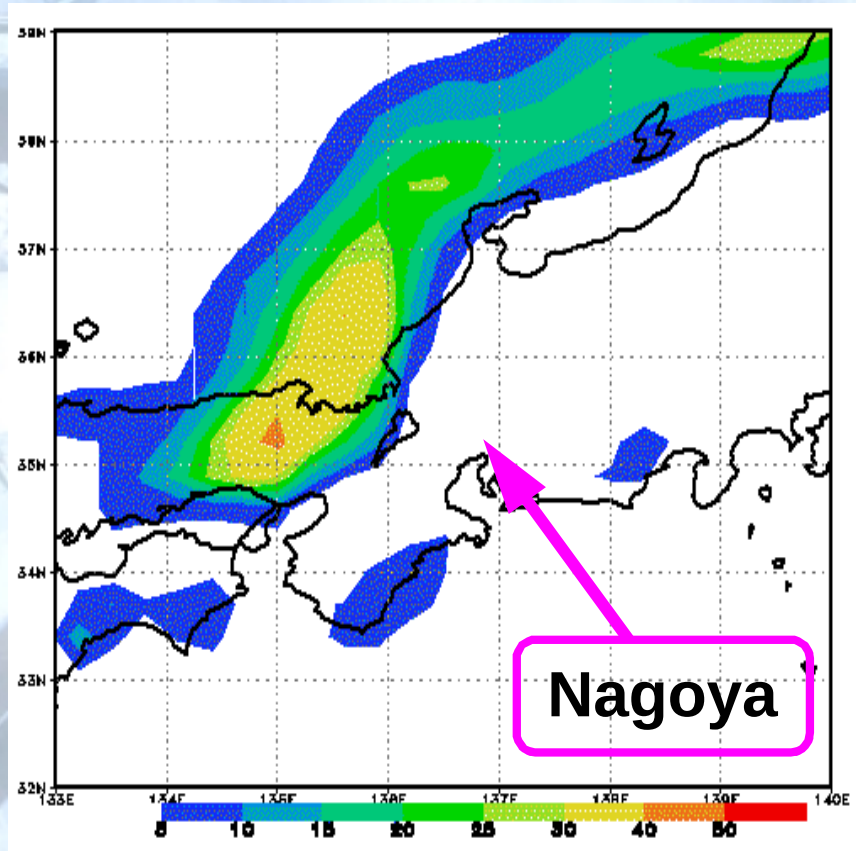
Operational Forecast was...

Rain Analysis by Radars-AMeDAS



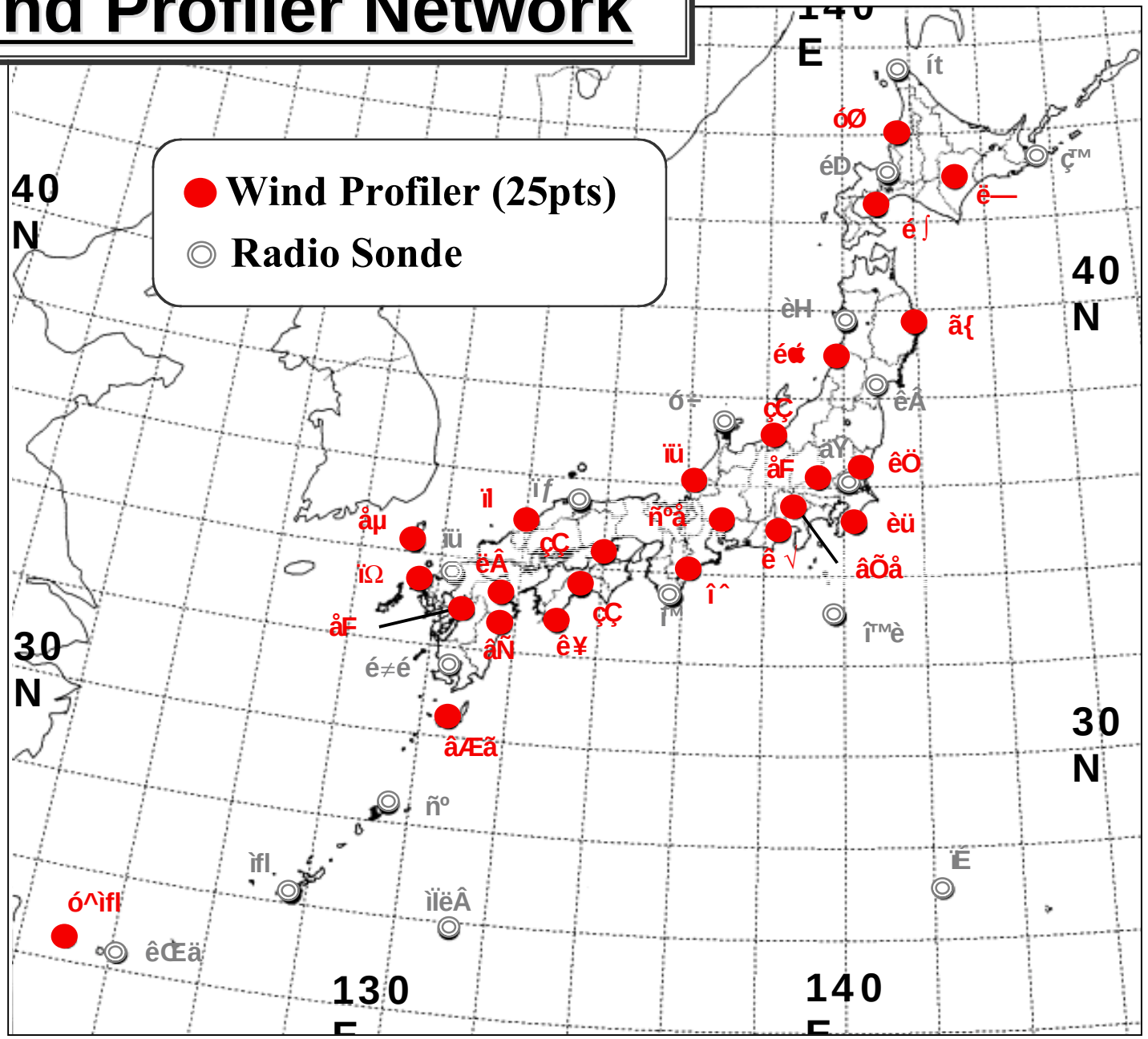
3hrs rain for 09 - 12utc

Forecast by RSM (20km H-res)

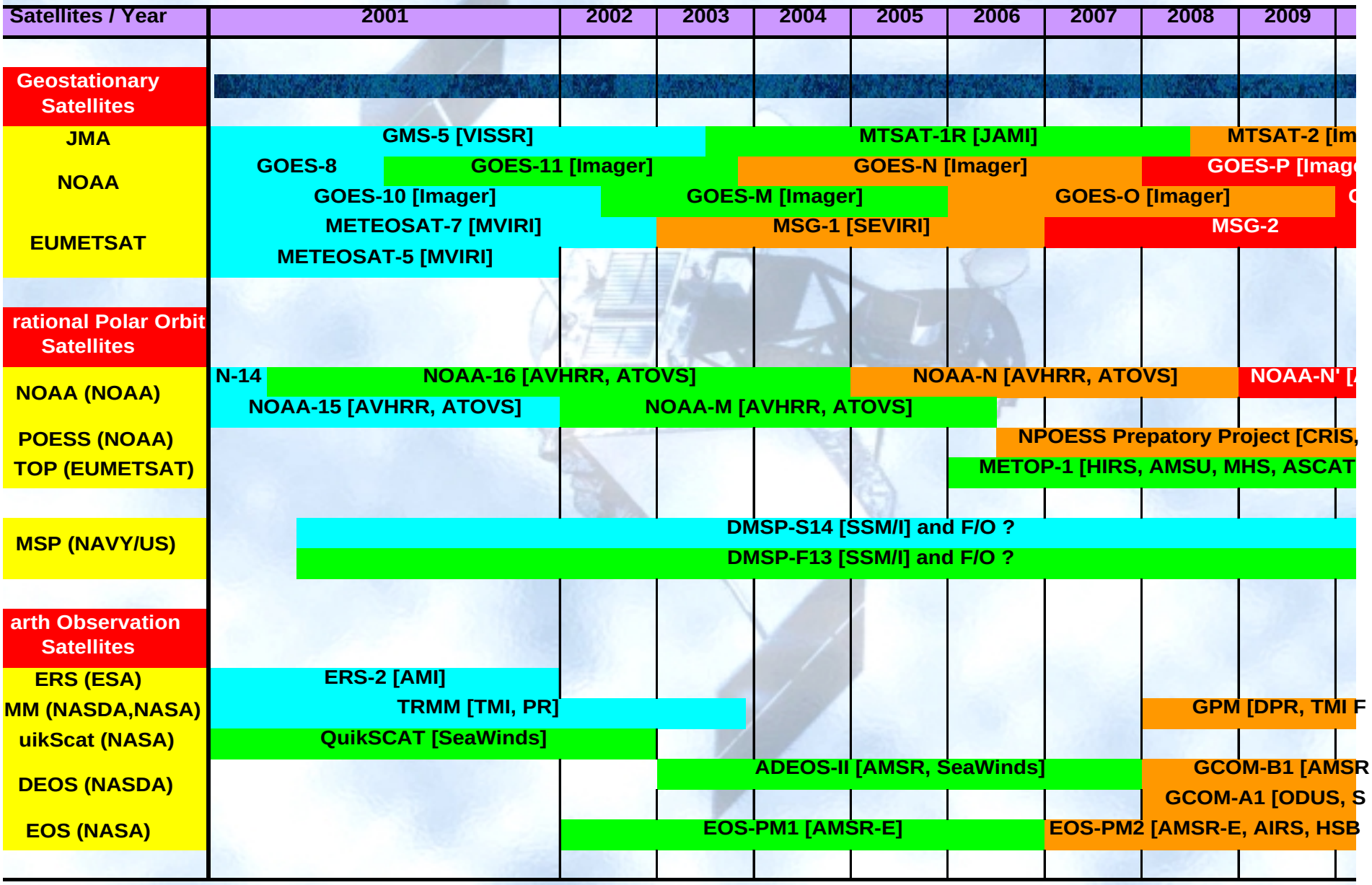


9 - 12hr forecast from 00utc on Sep11,00

Wind Profiler Network

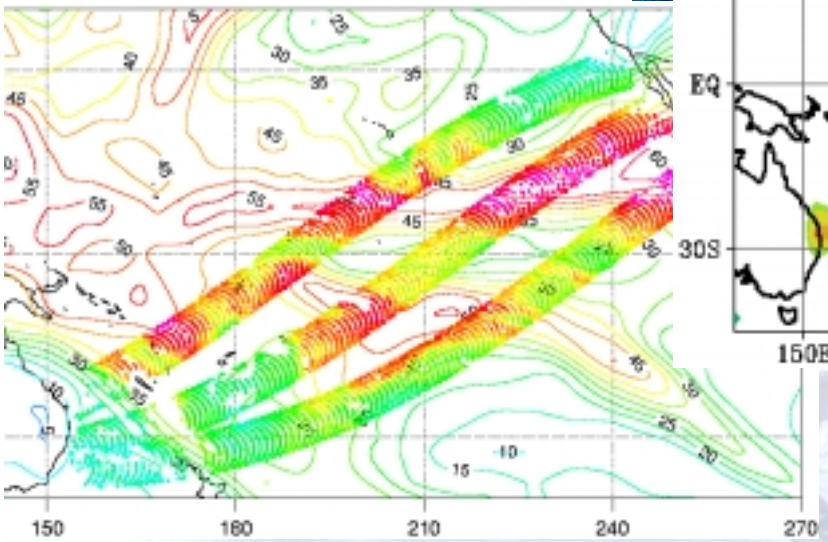


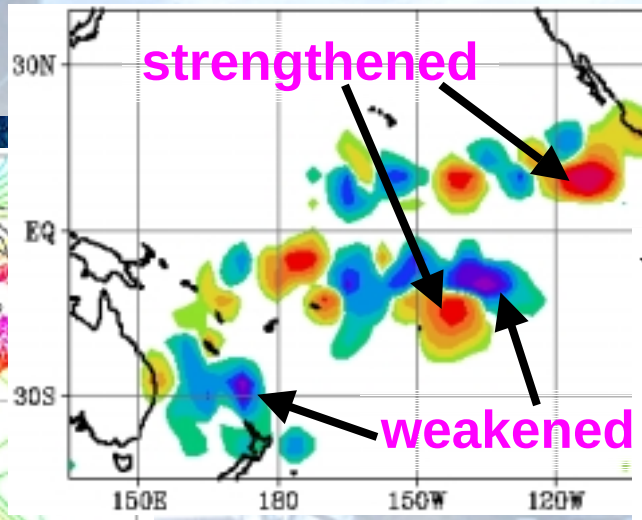
JMA Plans for Use of Satellite Data



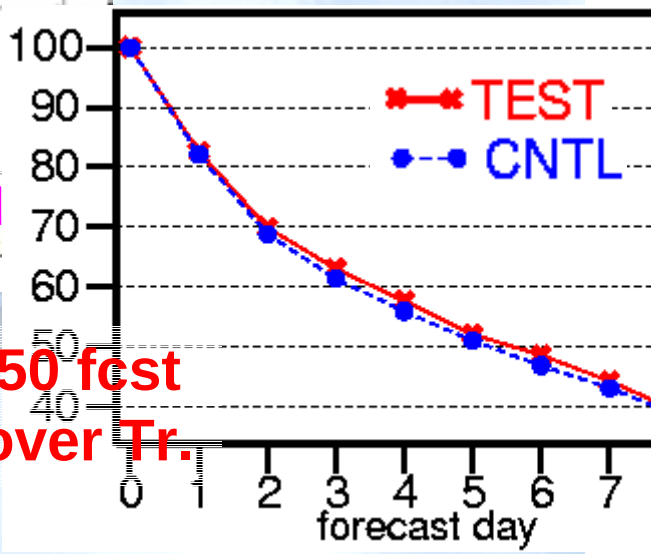
TRMM/TMI TPW assimilation

MI PW (with guess)





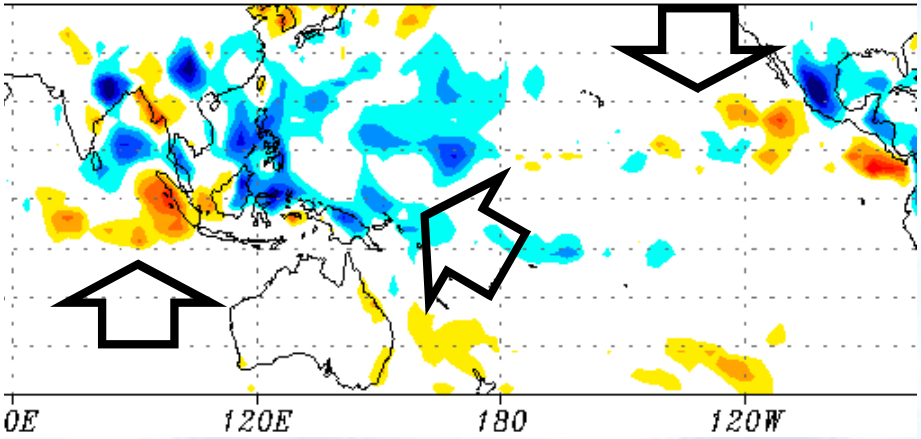
Impact on cumulus heating



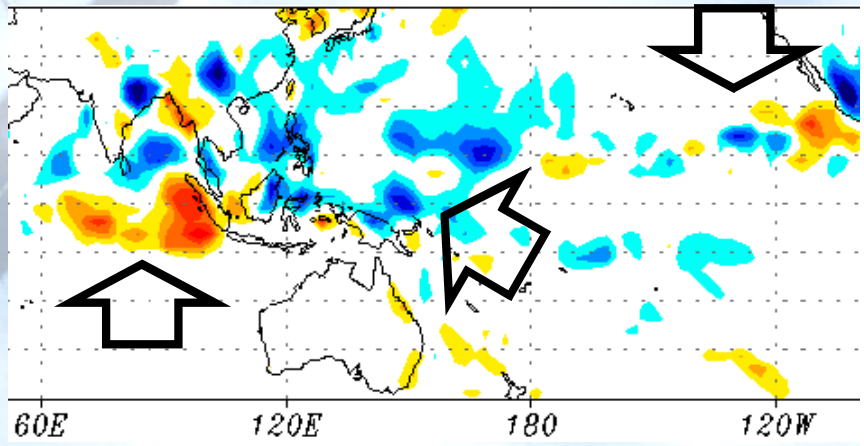
Wind850 fcst score over Tr.

Rain Forecast Error in Aug.1998.

Test (with TMI)



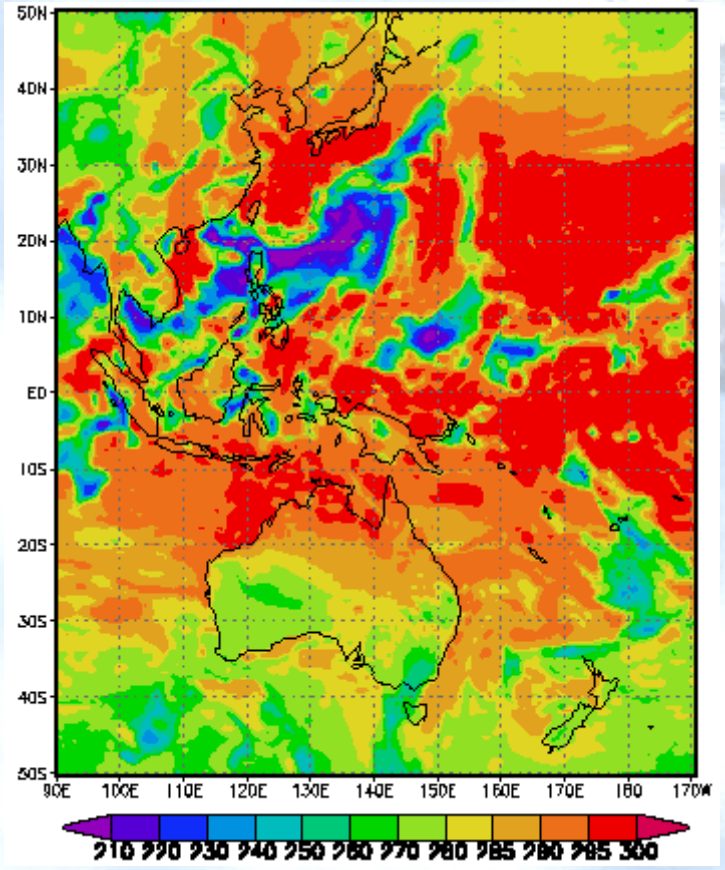
Control (no TMI)



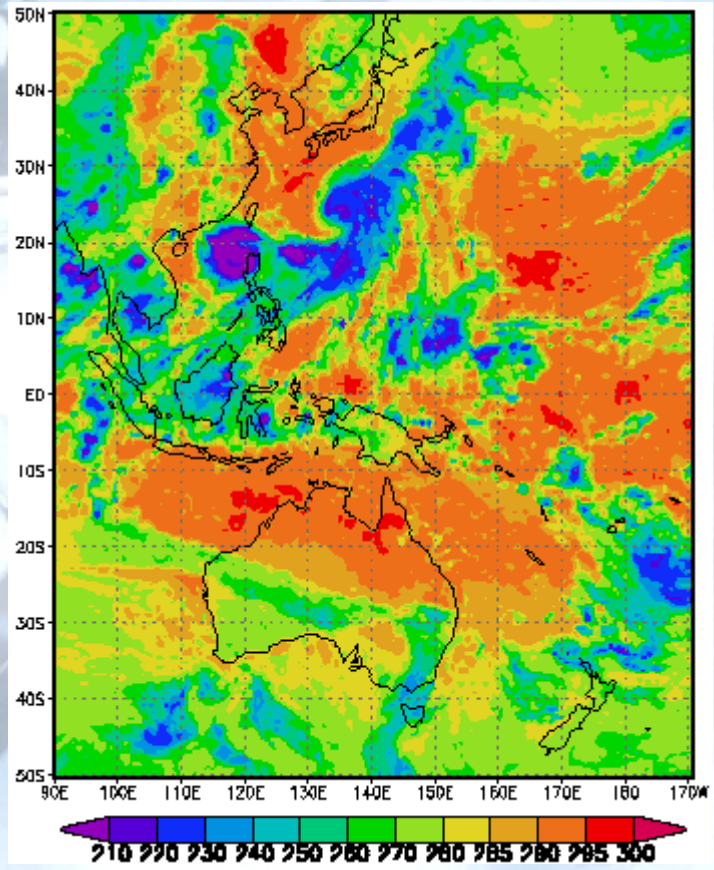
Simulation of GMS-5 IR1 Channel (study for cloud assimilation)

(00UTC Jun2000)

Simulated IR1



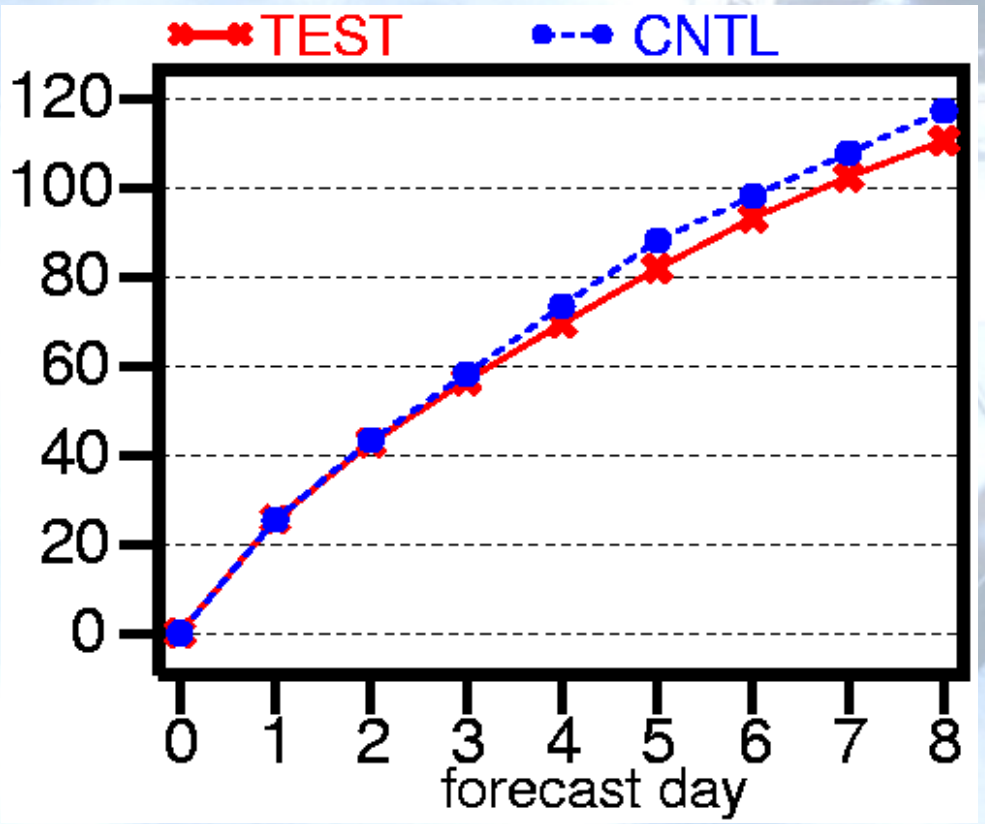
GMS5 IR1



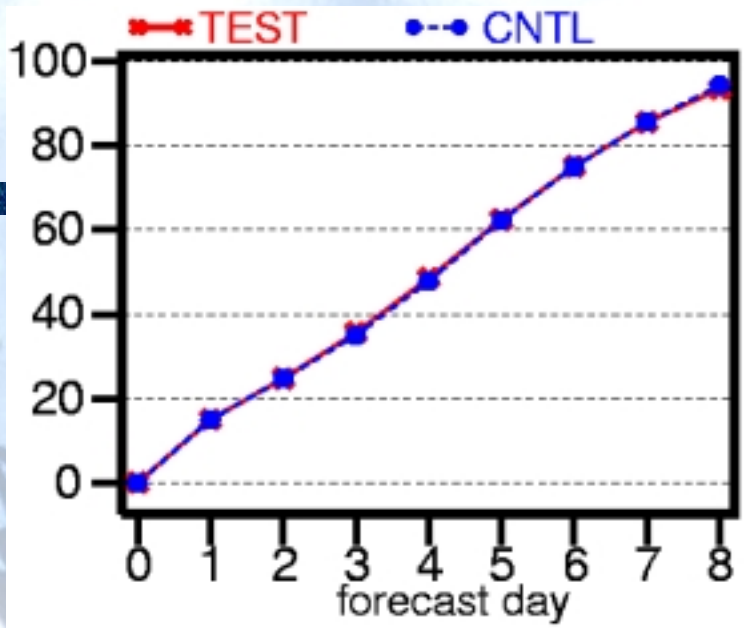
Impact of TOVS 1DVAR

Mean RMS forecast error against initalized analysis, 16 cases in Sep. 2000

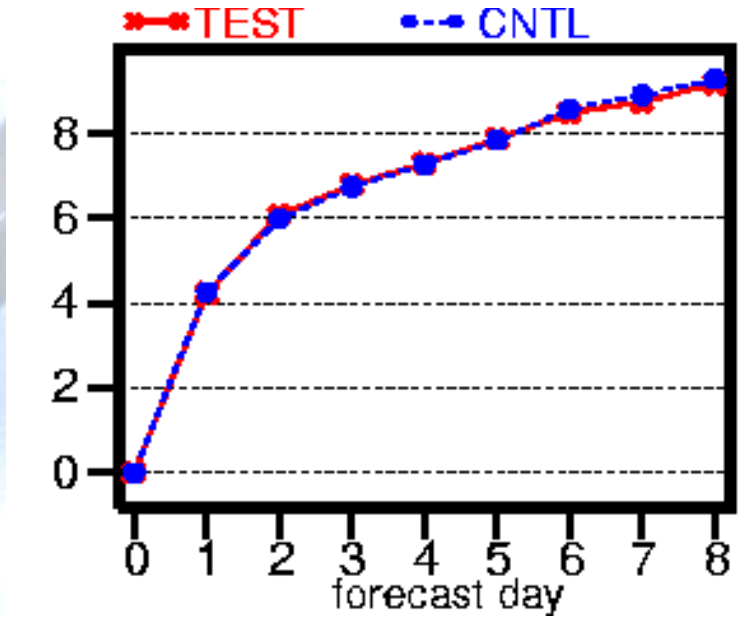
500Z S.H.



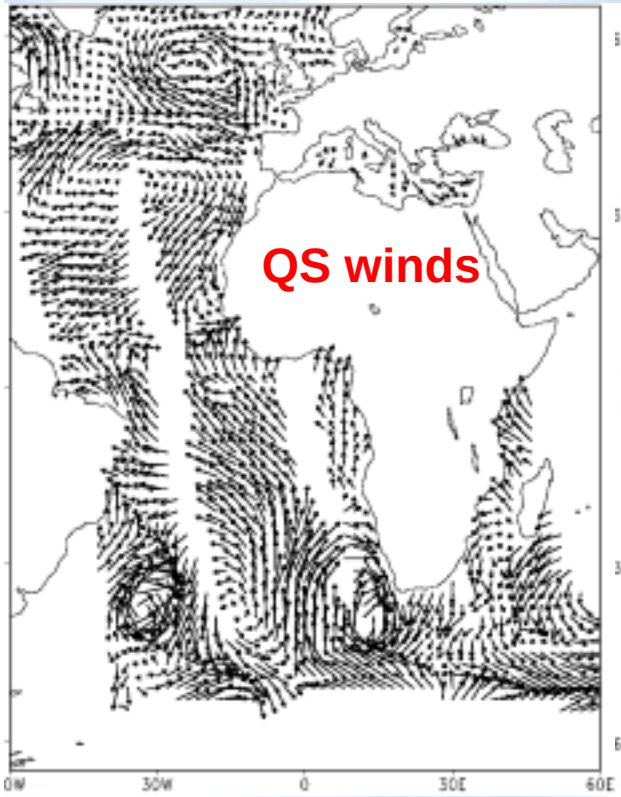
500Z N.H.

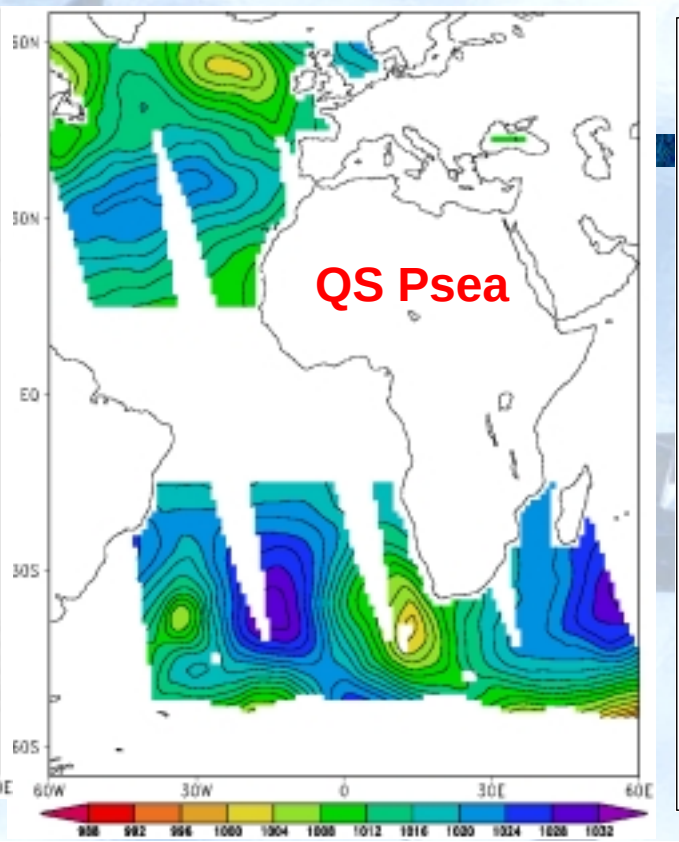


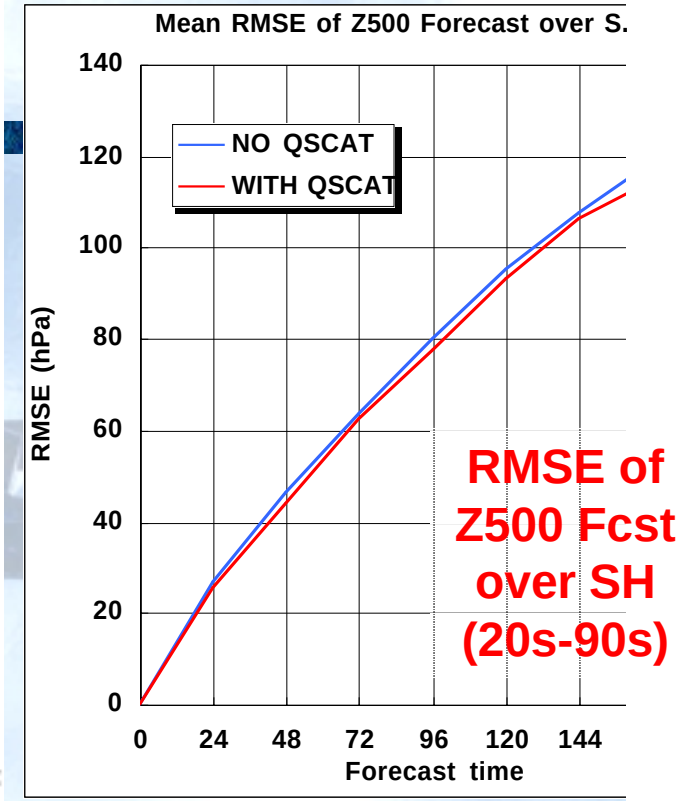
200Ucomp Trop.



Impacts of QuikSCAT/SeaWinds

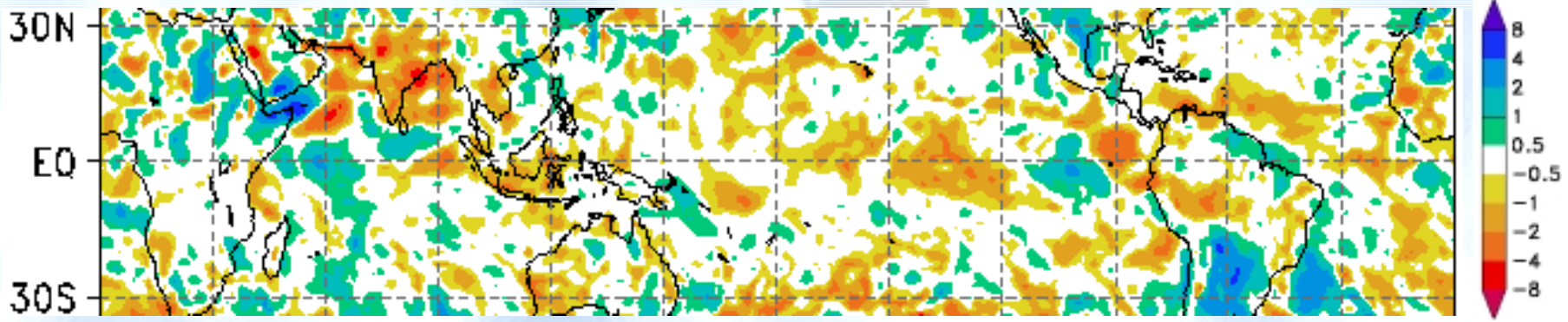






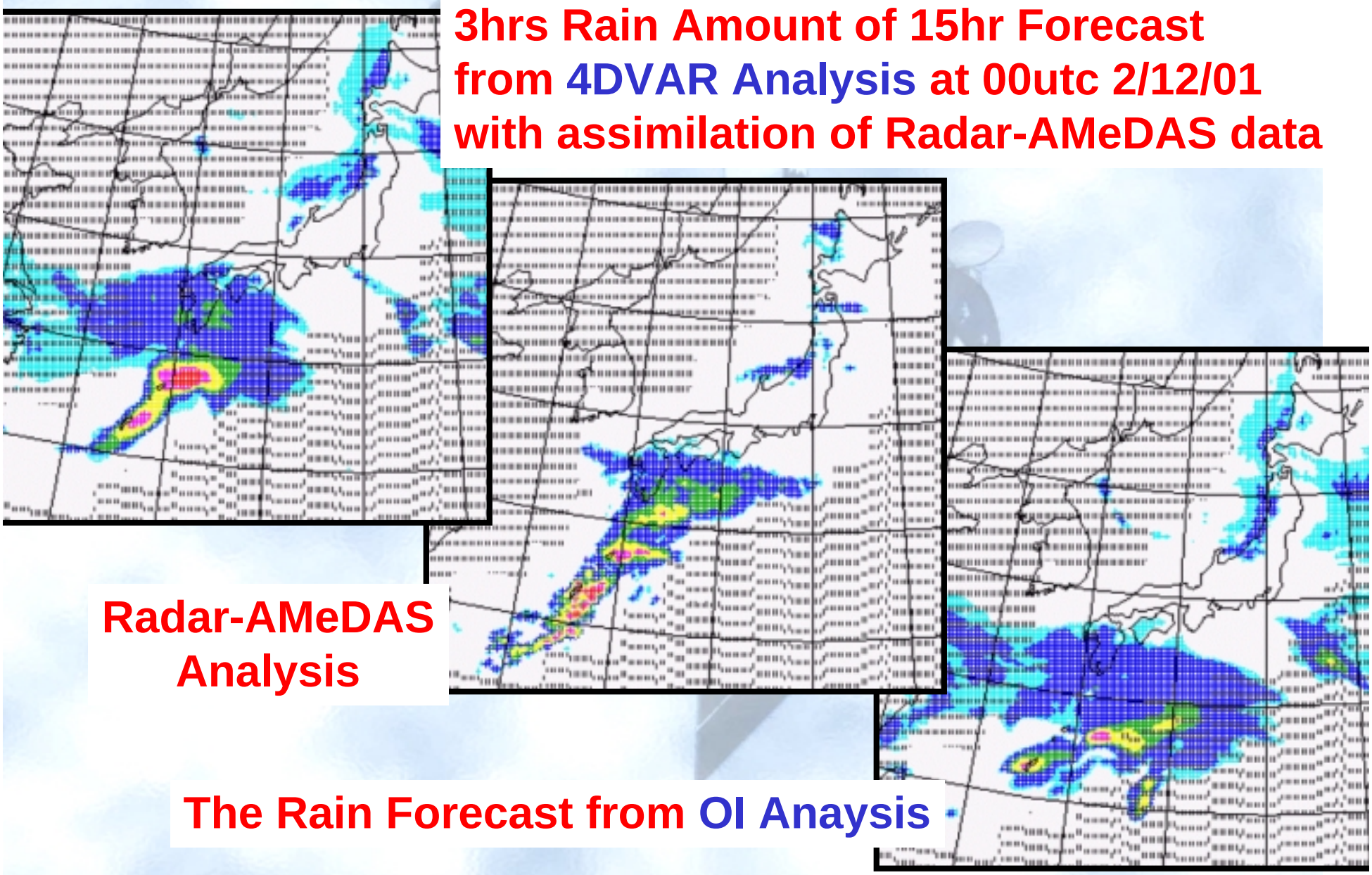
RMSE of Z500 Fcst over SH (20s-90s)

QSCAT run - Cntl run, RMSE Diff of 3day Fcsts on 850hPa Wind Vctr (m/s)



Rain Data Assimilation by 4DVAR

3hrs Rain Amount of 15hr Forecast from 4DVAR Analysis at 00utc 2/12/01 with assimilation of Radar-AMeDAS data



Radar-AMeDAS Analysis

The Rain Forecast from OI Anaysis

Expectations from GPM for NWP Purpose

- **Analysis and Forecast**
  - **GPM is expected to contribute on accurate global rain, moisture, cloud and surface analysis with its huge amount of observations and**
  - **On frequent watch of severe weather systems including tropical cyclones and their accurate analyses.**
  - **Good global analysis will lead good long-term forecast.**
  - **Good global analysis and forecast will lead good regional analysis and forecast.**
- **NWP model development**
  - **GPM is expected to contribute on not only producing climatic information but also the developments of NWP cloud, rain and snow fall schemes.**

Numerical Prediction Division of JMA and Joint Researches for Satellites

- **JMA/NPD**
  - **Management section (4)**
  - **Modeling branch (35)**
    - **Global modeling group (7)**
    - **Regional modeling group (7)**
    - **(New) Non-hydrostatic meso-scale modeling group (6)**
    - **Analysis group (7) .. (analysis scheme and QC)**
    - **(New) Satellite group (7) .. (satellite data assimilation)**
  - **Application branch (7)**
  - **Systems branch (11)**
- **Joint Research for Sat.**
  - **JMA/MSC (8)**
  - **NASDA/EORC (2)**

We are preparing to use increasing satellite data!!